

**B. TECH. (CBCS - 2014 COURSE) SEM - VIII (ELECTRONICS)  
: SUMMER - 2018**

**SUBJECT: ELECTIVE – II SPEECH PROCESSING**

Day: **Saturday**  
Date: **09/06/2018**

**S-2018-4686**

Time: **02.30 PM TO 05.30 PM**  
Max Marks.: **60**

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**N.B. :**

- 1) All questions are **COMPULSORY**
  - 2) Figures to the right indicate **FULL** marks
  - 3) Assume suitable data, if necessary.
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- Q.1 a)** Discuss the physiology of human ear. (06)
- b)** What is prosody? What are the prosodic features of speech? (04)
- OR**
- Q.1** Discuss different speech communication applications. (10)
- Q.2** Describe LPC analysis and synthesis of speech with the help of example. (10)
- OR**
- Q.2** Discuss the following: (10)
- i)** Cepstral Analysis
  - ii)** Pitch estimation
- Q.3** Describe the encoder and decoder of speech coding using formants with the help of diagram. (10)
- OR**
- Q.3** Discuss the cepstral vocoder encoder and decoder with the help of diagram. (10)
- Q.4** State and describe different speech synthesis applications. (10)
- OR**
- Q.4 a)** Compare waveform coding, analysis synthesis and synthesis by rule. (06)
- b)** What is the history of Text-to-Speech synthesis? (04)
- Q.5** Describe the spectral subtraction method with the help of diagram (10)
- OR**
- Q.5** Describe the following: (10)
- i)** Harmonic filtering
  - ii)** Adaptive noise cancellation
- Q.6** State and describe various speech recognition applications. (10)
- OR**
- Q.6** Describe the following: (10)
- i)** Mel frequency (MFCC)
  - ii)** Dynamic time warping (DTW)

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